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Leach Rates of Heavy Metals Sequestered in Coated Portland Cement

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Static leach rates have been determined for cadmium, iron, lead, and zinc ions, sequestered in coated and uncoated Portland cement cylinders. The coating is a nonbiodegradable geopolymer. Leach rates were determined in de-ionized water. Periodic readings using Atomic Absorption were obtained to give the concentration of each specific sequestered ion. Leach rates were determined and expressed as the change in the ion concentration over total number of days observed. Our results indicate that all the ions sequestered in the coated cement have a significantly smaller leach rate. Furthermore, the leach rates increased in the order of Zn < Cd < Fe < Pb for the coated cement.

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